

Simplifying fractions

find common factors to divide the top and the bottom of the fraction

eg. $4/8 = 1/2$ common factor of 4

$$\frac{4 \div 4}{8 \div 4} = \frac{1}{2}$$

What are the factors of the following numbers?

$$144 = 2 \times 72 = 3 \times 2 \times 2 \times 3 \times 2 \times 2 = 12 \times 12 = 4 \times 36 = 6 \times 24 =$$

$$275 = 5 \times 55 = 275 = 25 \times 11 = 275 = 5 \times 5 \times 11 = 275$$

$$81 = 9 \times 9 = 3 \times 27 = 81 = 3 \times 3 \times 3 \times 3 = 81$$

Simplify
 $81/144$

$$\frac{\cancel{3} \times \cancel{3} \times \cancel{3} \times \cancel{3}}{\cancel{3} \times \cancel{2} \times \cancel{2} \times \cancel{3} \times \cancel{2} \times \cancel{2}} = \frac{9}{16}$$

$$81/144 = 0.5625$$

$$9/16 = 0.5625$$

$$275/81 = 275/81$$

no common factors so you can't simplify but you can make it into a mixed fraction if you want

$$3 \times 81 = 243$$

$$275 - 243 = 32$$

$$3 \frac{32}{81}$$

$$144/275 = \text{can't be simplified} = 144/275$$

you know for sure when you break it up into prime factors and see if it simplifies

start working through the workbook simplifying fractions

look in your agenda for the multiplication table page 30 to help with remembering all the non-prime numbers up to 225

work on p 9-11 in workbook - schedule 1 hour tonight to finish what you can.

be ready to go over the questions at the start of class next class.

Block 1-3

Simplifying Fractions

Divide the top (numerator) and the bottom (denominator) by the same number - a common factor

eg.

4/8 4 and 8 have a common factor of 4,

$$\frac{4}{8} \div \frac{4}{4} = \frac{1}{2}$$

another method is to set up the prime factors for the top and bottom and check if they cancel out.

give me the factors and prime factors for

$$81 = 1 \times 81 \text{ or } 3 \times 27 = 81 \quad 9 \times 9 = 81$$

$$\boxed{3 \times 3 \times 3 \times 3 = 81} \text{ prime factors}$$

$$144 = 12 \times 12 = 144 = 6 \times 24 = 144$$

$$2 \times 72 = 16 \times 9 = 144 \quad 4 \times 36 = 144$$

$$\boxed{2 \times 2 \times 2 \times 2 \times 3 \times 3 = 144} \text{ prime factors}$$

$$275 = 275 \times 1 = 5 \times 55 = \boxed{5 \times 5 \times 11}$$

Look in agenda p 30, multiplication table.
If it is in white, it is composite (non-prime)
if it is not in white, it is prime

simplify by cancelling prime factors in common

81/144

$$\frac{81}{144} = \frac{3 \times 3 \times \cancel{3} \times \cancel{3}}{2 \times 2 \times 2 \times 2 \times \cancel{3} \times \cancel{3}} = \frac{9}{16}$$

144/275 =

81/275

workbook p 9 - 11

https://www.maa.org/sites/default/files/2016_AMC8_PracticeProblems.pdf

$$\frac{144}{275} = \frac{2 \times 2 \times 2 \times 2 \times 3 \times 3}{5 \times 5 \times 11} = \boxed{\frac{144}{275}}$$

lowest

No prime factors
in common

$$\frac{81}{275} = \frac{3 \times 3 \times 3 \times 3}{5 \times 5 \times 11} = \boxed{\frac{81}{275}}$$

P 10

Q 5 a) 31, 37, 41, 43, 47,
~~51~~, 53, ~~57~~, 59

b) ~~81~~, 83, 89, 97, 101, 103,
107, ~~111~~, 113, 127